Critical Choices

Seybold, Patricia. **Canadian Datasystems**. Toronto: Apr 1991.Vol. 23, Iss. 4; pg. 15, 1 pgs

Subjects:	Trends, Systems integration, Information systems, Architecture
Classification Codes	5240
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Publication title:	Canadian Datasystems. Toronto: Apr 1991. Vol. 23, Iss. 4; pg. 15, 1 pgs
Source Type:	Periodical
ISSN/ISBN:	00083364
ProQuest document ID:	239945
Text Word Count	704
Article URL:	http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:pqd&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&genre=article&rft_dat=xri:pqd:did=000000000239945&svc_dat=xri:pqil: fmt=text&req_dat=xri:pqil:pq_clntid=19649

Abstract (Article Summary)

Both desktop windowing environments and compound document architectures are being designed using the object model. Today's desktop environments allow users to link an object in one application to an object in another application so that the 2 enter into a relationship. Within 2-3 years, these linked objects will be dispersed in space and time across local and wide area networks. A set of international standards for document interchange should be standardized. Tagged objects should be stored in a database so that they can be independently reused and updated and so that new associations can be created among test, graphics, and image objects. Windows will be on the desktop for many office applications for the next 3 years. Possibly, the Object-Linking and -Embedding standard will be around for some time, since the personal computer software vendors are motivated by market share. For document processing, one should form a task force to look seriously at document architecture.

Full Text (704 words)

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Quite a few of the information system planners I talk to are ignoring compound document architectures. They assume that compound documents are only of interest to the publications department or to the claims processing department (for applications involving the integration of scanned images) -- application areas in which the specialists involved can safely be left alone to make their own decisions.

It is necessary to realize that there is an important connection between compound documents and desktop windowing environments. As you standardize on user interface environments for the desktop, you are also making some de facto choices about how you are going to integrate applications on the desktop and, eventually, across the network.

Both desktop windowing environments and compound document architectures are being designed using the object model. Each paragraph of a document, range in a spreadsheet, scanned image, or database query is an independent object with its own attributes and relationships to other objects. Today's desktop environments allow us to link an object in one application to an object in another application so that the two enter into a relationship.

Towards a Brave New World

Within two to three years, these linked objects will be dispersed in space and time across local and wide area networks. How we manage the different versions of objects, how we maintain integrity and security among distributed objects, are all challenges that will confront us as we lurch into this brave new world of compound document management and object management.

You may want to think about the evolution of your information architectures in much the same way as the particopants in the US Dept. of Defense's CALS program, who have agreed to exchange information using international standard encoding for text, graphics, images and so on.

First, standardize on a set of international standards for document interchange. The standards picked by CALS offer the highest level of reprocessibility and re-interpretation of the information; they are not lowest common denominator standards. SGML (Standard Generalized MarkUp Language), for example, tags document elements structurally: what is the function of this paragraph? How does it relate to paragraphs above and below?

Second, store your tagged objects in a database, so that they can be independently reused and updated, and so that new associations can be created among text, graphics, and image objects. Also data-dependent objects, like spreadsheets or machine tool specifications, can be stored and linked along with the methods that control their behaviour.

Multiple object databases may be the ideal eventual solution for the storage and retrieval of these vast collections of objects. In the meantime, however, you should be thinking about storing objects in relational databases.

What should you do about the desktop wars that have re-emerged, this time between Microsoft and IBM? I think that we are going to have to live with Windows on the desktop for many office applications for the next three years. It is not my preferred solution, because it is a lot of work to write good Windows applications, and it focusses developers' attention on the desktop rather than the workgroup or organizational issues.

I also suspect that we are going to be stuck with the OLE (Object-linking and -Embedding) standard that is being promulgated by Microsoft, Lotus, WordPerfect, et al, because the PC software vendors are all motivated by the same pragmatic goal: market share.

Bear in mind, however, that OLE is not a panacea. It does nothing to address the issues of workgroup or organizational computing. For those applications, I recommend that you look seriously at both HP's and Digital's architectures.

As for document processing, if, like us, you are a document-intensive company, form a task force to look seriously at document architectures. Include SGML in your thinking, and also give some thought to methodologies for tagging and organizing information.

In short, don't be oblivious to the steep learning curve that object, document, and information architectures present, nor to the monumental payoffs that will accrue to organizations which begin now to codify and organize information in reusable, reprocessable form. Patricia Seybold

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